

# Relating Form and Meaning in Negative Polar Questions

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## Positive and negative PQs

There are cross-linguistically a multitude of strategies for construction of polar questions (PQs, those questions whose expected responses are either affirmation or negation). Among these are polar questions without negation:

(1) Did Terpsichore play the theremin? *Positive PQ*

And those with:

(2) Didn't Terpsichore play the theremin? *High Neg. PQ*

(3) Did Terpsichore not play the theremin? *Low Neg. PQ*

- And as Ladd (1981) and others have noted extensively, there are likely two ambiguous interpretations of (2). We'll come back to this.

## Meaning of PQs

In a Hamblin (1973)-semantics, the denotation of a question is the set of all propositions that comprise complete answers to that question.

- (4)     $\llbracket \text{Did Terpsichore play the theremin?} \rrbracket$   
        $= \{ \lambda w [T \text{ played the theremin in } w], \lambda w [T \text{ did not play the theremin in } w] \}$   
        $= \llbracket \text{Didn't Terpsichore play the theremin?} \rrbracket$   
        $= \llbracket \text{Did Terpsichore not play the theremin?} \rrbracket$   
        $= \dots$

...the same equivalence holds true of many other versions of question semantics (e.g., Groenendijk & Stokhof 1982, 1989).

## A familiar puzzle

But, these questions don't all have the same **pragmatic** distribution. If a speaker has no epistemic bias, using an NPQ is quite odd:

(5) *Context: You have no idea what the weather is like.  
You ask your coworker:*

- a. ??Is it not raining today?
- b. #Isn't it raining today?
- c. Is it raining today?

## A familiar puzzle (cont.)

- (6) *Context: Your coworker comes in to the windowless office bone-dry. You heard on the news yesterday it would rain today. You ask them:*
- a. Is it not raining today?
  - b. Isn't it raining today?
  - c. #Is it raining today?

The NPQ seems to indicate that the speaker has a (prior) belief that it would be raining.

# The big question(s)

**Why do NPQs give rise to the bias implicatures that they do? And what is so special about negation?**

To probe this question, I will investigate novel data in a language with an unexplored NPQ landscape: Estonian.

## Estonian PQs

Canonical PQs in Estonian make use of the left-periphery question particle *kas*:

- (7)    *Kas sul*            on jalgratas?  
          Q   you.ADE is bicycle  
          ‘Do you have a bicycle?’

Positive *kas*-questions are ‘neutral’ or ‘unmarked’: they do not communicate biases of the speaker (Keevallik 2009).

...This is an awful lot like PPQs in English.

## Negative *kas*-PQs

Negation in Estonian is realized with the preverbal negative particle *ei* and a 'connegative' form of the verb.

Negative PQs can be formed, just like PPQs, with the addition of left-periphery *kas*.

- (8) Kas sul ei ole jalgratast?  
 Q you.ADE NEG be.NEG bicycle.PART  
 'Don't you have a bicycle?'

Glibly: *Kas*- $\neg p$  questions indicate speaker's epistemic bias for *p*.



## Negative *ega*-PQs

In addition to *kas*, there is also the PQ particle *ega*, canonically treated as a negative question particle. (Metslang 1981, Erelt et al. 1995, Tamm 2015, a.o)

- (9) Ega sul ei ole jalgratast?  
 Q.NEG you.ADE NEG be.NEG bicycle.PART  
 ~‘You don’t have a bicycle, do you?’

Canonically *ega*- $\neg p$  questions indicates speaker bias for  $\neg p$ , **the opposite bias from *kas*-NPQs**.

This presentation constitutes an attempt to figure out why that is.

## Some previous work

The connection between interrogative form and its discourse effects is not a new question.

### Semantic accounts

- PQs with preposed negation introduce a VERUM operator, which may participate in scopal interactions with negation (Romero & Han 2004)
- Negation may be literal or ‘metalinguistic’ (Reese 2006)

### Pragmatic accounts

- Bias arises from differing utilitarian value of PQ forms to the speaker (van Rooy & Šafářová 2003)
- PQ bias arises with the expected response of an interlocutor (Farkas & Roelofsen 2017)

## But...

- No consensus on the precise discourse effects of marked PQs in general:
  - Do they encode epistemic bias of the speaker? (Ladd 1981)
  - Evidential bias of the context? (Büring & Gunlogson 2000)
  - Some combination therein? (Sudo 2013, Gyuris 2016, Domaneschi et al. 2017)
- Relatively little understanding of the relationship between discourse effects of a PQ and its morphosyntactic form
- Sparsity of languages studied in detail (English, German, Japanese...), language-proprietary analyses

## My approach

NPQ negation is just ordinary  $\neg$  negation, and with sensible enough pragmatic principles, other discourse effects arise. Combining compositional semantics and a principled theory of 'markedness' (i.e., the highlighting approach of Roelofsen & Farkas 2015, Farkas & Roelofsen 2017) can go the distance.

# Goals

- Add to the typological landscape with a language heretofore absent from the discussion—Estonian
  - Estonian is interesting because the two main types of NPQs have radically different discourse effects.
- Demonstrate that the discourse effects of NPQs can be derived from relatively tame assumptions about compositional semantics and pragmatics.

# Roadmap

Background

Estonian NPQs

Markedness and kas

Ega and lexically-determined bias

Conclusion

## Canonical use of *kas*-NPQs

Negative *kas*-questions are often challenging or adversative; the speaker presents themselves as believing *p* in spite of evidence to the contrary: this crisis is often a source of conflict.

- (10) Kas homseni ei anna oodata?  
Q tomorrow.TER NEG let.NEG wait.INF  
'Can't it wait till tomorrow?' (Keevallik 2009: 146)

## Canonical use of *ega*-NPQs

Negative *ega*-questions are often deferential and polite, roughly like English *I don't suppose that...* requests.

- (11) Tere, ega     te ei     tea             öelda   kas  
hi     Q.NEG you NEG know.NEG say.INF Q  
soloogia         muuseum on lahti?  
zoology.GEN museum is open  
'Hi, I don't suppose you could tell me if the zoology  
museum is open.' (Keevallik 2009: 151)

Essentially, the speaker deferentially presents themselves as believing that the addressee couldn't say whether the museum was open, perhaps easing the burden on the respondent should they have to give a negative response.



## More than just INPQ/ONPQ distinction

Ladd (1981) characterizes high negation PQs in English as either:

- Inner HNPQs, which license PPIs and indicate bias for  $p$
- Outer HNPQs, which license NPIs and indicate bias for  $\neg p$

This distinction is however not straightforwardly grafted onto the difference between *kas* and *ega* NPQs, which both license NPIs, like *veel* 'yet':

(12) Ega te ole seda veel kuulnud?  
Q.NEG you be.NEG this yet listen.NEG.PST  
'Have you (really) not listened to this yet?'

(13) Kas te ei ole veel söönud?  
Q you NEG be.NEG yet eat.NEG.PST  
'Haven't you eaten yet?'

While the discourse effects of *kas* and *ega*-NPQs might have some superficial similarities to English INPQs/ONPQs, an account which relies on this distinction (e.g. Romero & Han 2004) is inadequate.

## In embedded contexts

Both *kas-* and *ega*-NPQs are embeddable. Notably, the bias of both kinds of NPQs in subordinate clauses is associated with the attitude holder (i.e., the matrix subject) rather than the speaker.

- (14) *Context: Gera is cut and rushed to the hospital and Alja, who is in love with her, follows.*

Alja käib arsti juures ja küsib, (et) kas ta ei

Alja goes doctor.GEN until and asks that Q he NEG  
saaks verd anda.

could blood give.INF

'Alja goes to the doctor and asks whether he couldn't give blood.'

## In embedded contexts

Both *kas-* and *ega-*NPQs are embeddable. Notably, the bias of both kinds of NPQs in subordinate clauses is associated with the attitude holder (i.e., the matrix subject) rather than the speaker.

- (15) *Context: Nancy's father is ignorant of the fact that potatoes are a staple of Baltic cuisine.*

Nancy        isa        küsib, (et) ega        teil        ju  
 Nancy.GEN father asks    that Q.NEG you.ADE after.all  
 seal Eestis                kartuleid ei        kasvatata.  
 there Estonia.INESS potatoes NEG grow.NEG  
 'Nancy's father asks whether you (really) don't grow  
 potatoes there in Estonia.

## Word order

Word order in *kas*-PQ is generally SVO, like matrix declaratives. However, *ega*-PQs are preferentially SOV (but optionally SVO), like embedded declaratives.

- (16) a. {✓Kas/✓Ega} Epp ei räägi hiina  
 Q/Q.NEG Epp NEG speak.NEG Chinese  
 keelt?  
 language.PART  
 'Doesn't Epp speak Chinese?'  
 b. {\*Kas/✓Ega} Epp hiina keelt ei räägi?

## Optionality of negative particle

The negative particle *ei*, mandatory in negative declaratives, may be omitted in *ega*-questions, though it is required in *kas*-NPQs.

- (17) a. Kas jaanipäeva viktoriin \*(ei) olnud  
 Q Midsummer.GEN quiz NEG be-PAST.NEG  
 liiga raske?  
 too difficult  
 'Wasn't the quiz about Midsummer too difficult?'  
 (Tamm 2015: 410)
- b. Ega jaanipäeva viktoriin liiga raske (ei)  
 Q.NEG Midsummer.GEN quiz too difficult NEG  
 olnud?  
 be-PAST.NEG  
 'The quiz about Midsummer wasn't too difficult,  
 right?' (Tamm 2015: 411)

## Summary

<i>Kas</i> -NPQ	<i>Ega</i> -NPQ
<i>Ei</i> mandatory SVO Implicates speaker believes $p$ Can be embedded Used in challenges	<i>Ei</i> optional SVO or SOV implicates speaker believes $\neg p$ Can be embedded Used in polite requests

## A background assumption

A negated proposition  $\neg p$  is more 'marked' than its non-negated counterpart  $p$ , following Givón (1978).

- It's strange to assert a negated sentence like *Today is not Tuesday* in the absence of a context where the positive proposition is likely to be true.

## Gricean logic

The markedness effect in PQs is even more dramatic. Whereas asserting  $p$  and  $\neg p$  are truth-conditionally distinct, PPQs and NPQs are semantically identical.

But since NPQs are morphosyntactically more complex than PPQs, using NPQs violates Quantity.

Both PPQs and NPQs nominally fulfill the same inquisitive role of requesting information, but NPQs convey further additional information.



## Markedness in Estonian

*Kas*-NPQs are marked in one respect: they have negative form, but a vanilla question particle.

*Ega*-NPQs have both a marked form and a marked particle.

- (18) *textscMarkedness of Estonian questions: ega-NPQ > kas-NPQ > kas-PPQ*

## A background assumption

The LF of a negative PQ: the question particle scopes over negation, which scopes over a proposition. For instance, the LF of (19) would be (19-b):

- (19)    a.    Kas Jaanil on jalgratas? ‘Does Jaan have a bicycle?’  
         b.    [Q [ $\neg$  [you have a bicycle]]]

# The meaning of question *kas*

I assume that *kas* is purely a polar question particle, which takes a propositional argument and returns the set containing that proposition and its negation.

$$(20) \quad \llbracket kas \rrbracket = \lambda p_{st}. \{ \lambda w. p(w), \lambda w. \neg p(w) \}$$

## *Kas*-PPQ vs. *Kas*-NPQ

The semantics of a *kas*-PPQ and its corresponding *kas*-NPQ are thus:

- (21)    a.     $\llbracket \textit{Kas Jaanil on jalgratas?} \rrbracket = \{\lambda w[\text{Jaan has a bike in } w], \lambda w[\neg(\text{Jaan has a bike in } w)]\}$   
         b.     $\llbracket \textit{Kas Jaanil ei ole jalgratast?} \rrbracket = \{\lambda w[\neg(\text{Jaan has a bike in } w)], \lambda w[\neg\neg(\text{Jaan has a bike in } w)]\}$

These are, of course, logically identical. But crucially, they differ in which alternative is presented as less marked.

## Deriving the bias

- In a *kas*-NPQ, the speaker presents the negative alternative as the unmarked alternative.
- All else being equal, the unmarked alternative is the more expected response, along the lines of van Rooy & Šafářová (2003). The reason why *kas*-NPQs are associated with epistemic bias for  $p$  has to do with the sorts of conditions in which one would use such a question.
- If the speaker believes  $p$ , but receives contextual evidence that  $\neg p$ , they are obliged to resolve this crisis by asking about it. They expect  $\neg p$  to be the addressee's response, given said contextual evidence.
- But if the speaker is neutral wrt  $p$  or believes  $\neg p$  in a similar context, there is no such crisis, thus eliminating the need to ask a question at all. (I would expect *kas*-NPQ to be the preferred option in a forced choice task, however.)

## What about *ega*?

*Ega*, unlike *kas*, is clearly not a straightforward PQ particle, and sentences it occurs in are quite marked.

It is also hard to make the argument that *ega* is a vanilla NPI, since it seems to always appear outside the scope of negation.

To understand the contribution of *ega*, it is crucial to clarify its distribution more thoroughly.

## Non-inquisitive *ega*

Keevallik & Habicht (2017) point out that *ega* can be used turn-initially in some non-interrogative utterances as an 'adversative epistemic' particle which serves to reinforce the truth of the prejacent proposition:

- (22) Ega ma mingi Mäkaiver ei ole.  
EGA I some.kind.of MacGyver NEG be.NEG  
'I'm for sure not a MacGyver.' (Keevallik & Habicht 2017: 82)

Given this, and the lack of syntactic marking of interrogative forms, it might seem plausible to reanalyze *ega* as some sort of discourse particle or verum focus marker—and *ega*-questions as non-interrogatives.

## Non-inquisitive *ega*

### However:

- In contemporary spoken Estonian *ega*-utterances are frequently interpreted as questions (Keevallik & Habicht 2017)
- *Ega* often co-occurs with the sentence-final PQ particle *või/vä* ('or', diachronically) (Lindström 2001)
- *Ega* never co-occurs with *kas*

There seems to be at least one use of *ega* that is genuinely interrogative, but the difference between declarative and interrogative sentences in Estonian is non-obvious.



## Encoding epistemic bias

Unlike *kas*, *ega* is never used in situations of epistemic neutrality; it always indicates that the speaker (in matrix contexts) or the attitude holder (in embedded contexts) is committed to  $\neg p$ —the very prejacent of *ega*. It seems to be therefore reasonable to treat associated bias as (derivable from) its meaning.

There are also the following observations that must be accounted for:

1. In embedded clauses, the bias is associated with the attitude holder, not the speaker.
2. *Ega* does not appear without a negated prejacent.

## Encoding epistemic bias

Point (1)—that *ega* in a subordinate clause does not necessarily reflect biases of the speaker—is part of a larger class of perspectival shift in embedded clauses:

(23) Mary is always saying how very nice Gladys is.

(24) Flossie believes that the cake is tasty.

So we independently need a mechanism for licensing this sort of shift in any case—e.g., the judge parameter of Stephenson (2007).

## Encoding epistemic bias

So given that *ega* comes with bias as a *sine qua non*, I treat that bias as part of the lexical meaning.

This is cashed out as follows: the ‘judge’ (the speaker, by default, but potentially an attitude holder) believes that prejacent proposition.

$$(25) \quad \llbracket \text{ega} \rrbracket^j = \lambda p_{st}. : \text{Dox}_j \subseteq p. \{ \lambda w. p(w), \lambda w. \neg p(w) \}$$

However, nothing about this denotation accounts for the impossibility of *ega* with a positive prejacent.

Given that *ega*-questions presuppose believe of the prejacent, it is natural they should be used often in polite requests: the speaker presents themselves as believing  $\neg p$ , thus allowing an 'out' for an interlocutor to respond with a negative answer.

## Summary

- *Kas* is a standard-issue PQ operator, which behaves predictably when combined with negation.
- *Ega* is (at least in one use) a PQ operator with the additional presupposition of commitment to the prejacent proposition.
- 'Bias' in PQs can arise from multiple distinct sources: it can be pragmatic (as in the case of *kas*-NPQs) or semantic (as with *ega*-NPQs).

## Conclusion

- I've argued here in favor of a **hybrid** semantic/pragmatic account of the bias in negative polar questions.
- The bias of NPQs, broadly, can be derived from the compositional meaning of negation and question particles in conjunction with general pragmatic mechanisms.
- It's necessary to study PQs in less-familiar languages to push the viability of our theories to the limit.
- For *kas*-questions, this amounts to epistemic bias for  $p$ , and for *ega*, epistemic bias for  $\neg p$ .

## Future Directions/Outstanding Questions

- Studying this domain in a wider variety of languages would be a fruitful exercise.
- An experimental study of what factors license Estonian PQs of various types to precisify the semantics-pragmatics relationship (in progress)
- Could a flavor of the analysis provided here might also prove useful for understanding PQ constructions that are allergic to negation, e.g. Canadian French *tu*-questions?

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Slides available at:

<https://people.ucsc.edu/~tdrobert/inqbnb2.pdf>

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